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C. Neidlinger-Wilke, I. Stalla, I. Claes, R. Brand, I. Hoellen, S. Rübenacker, M. Arand and L. Kinzl — 1411 **Human osteoblasts from younger normal and osteoporotic donors show differences in proliferation and $T_{GF\beta}$-release in response to cyclic strain**

C. M. Stanford, J. W. Stevens and R. A. Brand — 1419 **Cellular deformation reversibly depresses RT-PCR detectable levels of bone-related mRNA**

Chingju Lin, P. Lamoureux, R. E. Buxbaum and S. R. Heidemann — 1429 **Osmotic dilution stimulates axonal outgrowth by making axons more sensitive to tension**

B. C. Berk, M. A. Corson, T. E. Peterson and H. Tseng — 1439 **Protein kinases as mediators of fluid shear stress stimulated signal transduction in endothelial cells: a hypothesis for calcium-dependent and calcium-independent events activated by flow**

J. Y.-J. Shyy, Yi-Shan Li, Ming-Chao Lin, W. Chen, S. Yuan, S. Usami and Shu Chien — 1451 **Multiple *cis*-elements mediate shear stress-induced gene expression**

W. F. Pritchard, P. F. Davies, Z. Derafshi, D. C. Polacek, R. Tsao, R. O. Dull, S. A. Jones and D. P. Giddens — 1459 **Effects of wall shear stress and fluid recirculation on the localization of circulating monocytes in a three-dimensional flow model**

D. E. Ingber, D. Prusty, Zhengqi Sun, H. Betensky and Ning Wang — 1471 **Cell shape, cytoskeletal mechanics, and cell cycle control in angiogenesis**

Wei Du, I. Mills and B. E. Sumpio — 1485 **Cyclic strain causes heterogeneous induction of transcription factors, AP-1, CRE binding protein and NF-kB in endothelial cells: species and vascular bed diversity**

J. Roelofsen, J. Klein-Nulend and E. H. Burger — 1493 **Mechanical stimulation by intermittent hydrostatic compression promotes bone-specific gene expression *in vitro***

A. J. Banes, M. Tsuzaki, Peiqi Hu, B. Brigman, T. Brown, L. Almekinders, W. T. Lawrence and T. Fischer — 1505 **PDGF-BB, IGF-I and mechanical load stimulate DNA synthesis in avian tendon fibroblasts *in vitro***

A. M. Malek and S. Izumo — 1515 **Control of endothelial cell gene expression by flow**

F. Guilak — 1529 **Compression-induced changes in the shape and volume of the chondrocyte nucleus**

Huicong Wang, W. Ip, R. Boissy and E. S. Grood — 1543 **Cell orientation response to cyclically deformed substrates: experimental validation of a cell model**

P. F. Davies, T. Mundel and K. A. Barbee — 1553 **A mechanism for heterogeneous endothelial responses to flow *in vivo* and *in vitro***

N. M. Bachrach, W. B. Valhmu, E. Stazzone, A. Ratcliffe, W. M. Lai and V. C. Mow — 1561 **Changes in proteoglycan synthesis of chondrocytes in articular cartilage are associated with the time-dependent changes in their mechanical environment**

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